



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,715	11/15/2001	Ernest R. Siler	DP-305919	3513

7590 07/21/2003

Scott A. McBain  
Delphi Technologies, Inc.  
Mail Code: 480-414-420  
P.O. Box 5052  
Troy, MI 48007-5052

EXAMINER

WILLIAMS, THOMAS J

ART UNIT

PAPER NUMBER

3683

DATE MAILED: 07/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application N .</b>	<b>Applicant(s)</b>
	10/001,715	SILER ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	Thomas J. Williams	3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 22 May 2003.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-13 is/are rejected.
- 7) Claim(s) 14-18 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 15 November 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 7-11 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,112,610 to Welling.

Re-claim 1, Welling discloses a ball-nut assembly, comprising: a ball nut 10 with a radial slot 12, the nut has an outer surface defining a first portion, a ledge 30b is radially recessed for the first portion and partially bounds the through slot 12, an undercut wall 30a connects the ledge and the first portion; a crossover member 13 has a flange 37 and/or 38 supported by the ledge 30b and a crossover groove 26, the flange 37 and/or 38 defines a deformed portion contacting the undercut wall 30a of the ball nut. The flange is deformed during assembly of the ball nut and crossover member, see column 4 lines 15-29, and is interpreted as a deformed portion.

Re-claim 2, the ledge has an annular shape, see figure 4, it surrounds the slot and supports the flange.

Re-claim 3, the undercut wall has axially opposing first and second end portion, defined as opposite points in the slot, the deformed portion includes first and second deformed portions 38, each deformed portion contacts a corresponding first and second end portion.

Re-claim 4, the first portion has a cylindrical shape, see figures 3 and 5.

Re-claim 5, the crossover member has a flat outward facing surface disposed below the first portion of the outer surface of the ball nut. The crossover member is provided with a recess or well 34 having a flat surface below the first portion.

Re-claim 7, Welling discloses a ball-nut assembly, comprising: a ball nut 10 or N includes an inside helical groove 11, a radial slot 12, the nut has an outer surface defining a first portion, a ledge 30b is radially recessed for the first portion and partially bounds the through slot 12, an undercut wall 30a connects the ledge and the first portion; a crossover member 13 has a flange 37 and/or 38 supported by the ledge 30b and a crossover groove 26, the flange 37 and/or 38 defines a deformed portion contacting the undercut wall 30a of the ball nut; a ball screw S includes an outside helical groove 18, the ball screw is disposed in the ball nut; a plurality of balls B contact the crossover grooved portion and a portion of the inside and outside helical grooves.

Re-claim 8, the ledge has an annular shape, see figure 4, it surrounds the slot and supports the flange.

Re-claim 9, the undercut wall has axially opposing first and second end portion, defined as opposite points in the slot, the deformed portion includes first and second deformed portions 38, each deformed portion contacts a corresponding first and second end portion.

Re-claim 10, the first portion has a cylindrical shape, see figures 3 and 5.

Re-claim 11, the crossover member has a flat outward facing surface disposed below the first portion of the outer surface of the ball nut. The crossover member is provided with a recess or well 34 having a flat surface below the first portion.

Re-claim 13, Welling discloses a method of making a ball-nut assembly, comprising: obtaining a ball nut N with a radial slot 12 and an outer surface defining a first portion, a ledge 30b recessed from the first portion, and an undercut wall 30a connecting the ledge and first portion; obtaining a crossover member 13 having a flange 37 and/or 38 and a crossover groove 26; disposing the crossover member form outside the ball nut to have the flange supported by the ledge and the crossover grooved portion 26 disposed in the through slot 12, see figures 3 and 5; deforming the flange creating a staked portion of the flange which contacts the undercut wall of the ball nut. The step of deforming the flange in Welling occurs during the insertion stage. The staked portion is defined as a means of securing the crossover member to the ball nut. This is seen as immediately occurring after the crossover member is inserted into the slot. The deformable sidewalls and flange are received in the recessed groove defined by the ledge and undercut wall.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welling.

Welling teaches that ball nut assemblies are widely used in a variety of mechanisms for providing axial movement. However, Welling fails to specifically teach the use of the ball nut in a vehicle brake system or motor driven system. The examiner takes official notice that the use of ball nut assemblies in vehicle brake systems and motor driven systems is well known in the art, and as noted by the applicant in the background of the invention. It would have been obvious to one of ordinary skill in the art to have utilized the ball nut assembly of Welling in a motor driven system or vehicle brake system, thus providing either system with a means of axially movement.

***Allowable Subject Matter***

6. Claims 14-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

7. Applicant's arguments filed May 22, 2003 have been fully considered but they are not persuasive. Each side wall (35, 36) and related projection (37,38) of insert block 13 is interpreted by the examiner as constituting a deformed portion. The projections clearly contact the undercut wall of the outer surface of the ball nut. During the assembly process each side wall will undergo deformation and as such meets the limitations of the claim.

With regards to the rejection of claims 6 and 12, the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice.

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Thomas Williams whose telephone number is (703) 305-1346. The examiner can normally be reached on Monday-Thursday from 6:30 AM to 4:00 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder, can be reached at (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Art Unit: 3683

*TJW*

TJW

July 16, 2003

*M.C.G.*  
7/17/2003  
**MATTHEW C. GRAHAM**  
**PRIMARY EXAMINER**  
**GROUP 310**